NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

PEACEFUL PROTEST, POLITICAL REGIMES, AND THE SOCIAL MEDIA CHALLENGE

by

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June 2016

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REPORT DOCUMENTATION PAGE		*Form Approved OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

1. AGENCY USE ONLY (*Leave blank)*	2. REPORT DATE June 2016	3. REPORT TYPE AND DATES COVERED Master's thesis	
4. TITLE AND SUBTITLE PEACEFUL PROTEST, POLITICAL REGIMES, AND THE SOCIAL MEDIA CHALLENGE		5. FUNDING NUMBERS	
6. AUTHOR(S) Geoffrey D. Childs and Randolph J. Fleming, II			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A		10. SPONSORING / MONITORING AGENCY REPORT NUMBER	

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB Protocol number ____N/A____.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited	12b. DISTRIBUTION CODE

13. ABSTRACT (maximum 200 words)

Information and communication technologies (ICT) have transformed with the advent of the Internet and the diffusion of cellular-based communications. Previous research has examined the effects of horizontal ICT on collective violence, but the effects on non-violent expressions are not well understood. Using social conflict data from Africa and Latin America between 1990 and 2011, this study employs negative binomial regression models to explore the distinct effects of the spread of social media on peaceful protests within democratic, anocratic, and autocratic regimes. Multiple regression models find strong statistical evidence in support of a positive relationship between social media and peaceful protest in anocratic regimes. Autocratic and anocratic states will thus increasingly find themselves in a social media challenge—repress horizontal ICT or embrace it and its effects—as their populations seek democratization.

14. SUBJECT TERMS information and communications technology (ICT), authoritarian, autocratic, anocratic, civil conflict, collective action, peaceful protest, social media index (SMI)			15. NUMBER OF PAGES 69
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU

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MASTER OF SCIENCE IN INFORMATION STRATEGY AND POLITICAL WARFARE
AND
MASTER OF SCIENCE IN DEFENSE ANALYSIS

from the

NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

Information and communication technologies (ICT) have transformed with the advent of the Internet and the diffusion of cellular-based communications. Previous research has examined the effects of horizontal ICT on collective violence, but the effects on non-violent expressions are not well understood. Using social conflict data from Africa and Latin America between 1990 and 2011, this study employs negative binomial regression models to explore the distinct effects of the spread of social media on peaceful protests within democratic, anocratic, and autocratic regimes. Multiple regression models find strong statistical evidence in support of a positive relationship between social media and peaceful protest in anocratic regimes. Autocratic and anocratic states will thus increasingly find themselves in a social media challenge—repress horizontal ICT or embrace it and its effects—as their populations seek democratization.

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LIST OF ACRONYMS AND ABBREVIATIONS

AIC	Akaike information criterion
GDP	gross domestic product
ICT	information and communication technology
SCAD	Social Conflict in Analysis Database
SMI	social media index
WDI	World Development Indicators

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I.   INTRODUCTION

On December 17, 2010, a Tunisian man, Mohamed Bouazizi, lit himself on fire in protest against his treatment by an abusive regime.[1] Though the event was not covered by Tunisian press and was subsequently actively suppressed, it became a watershed moment in what many have argued is the beginning of democracy's fourth wave. In the incipient stages of the Arab Spring, many journalists pointed to new media as a catalyst for the protests, demonstrations, riots, and general fighting. More nuanced analyses recognize the numerous and diverse factors at play contributing to the popular movement that swept across North Africa and the Middle East. Viewing the Arab Spring as a mere social media phenomenon is reductive, but ignoring the role it and associated technologies played is likewise a mistake. This analysis seeks to contextualize the role new media plays in collective action in conflict states.

This research hypothesizes that new media availability is fundamentally changing the transaction costs and dynamics of human interaction within the state and region. Communication and social interaction have been enabled in ways previously unimaginable; consequently, individuals and groups are able to collaborate and organize in completely novel ways. This thesis seeks to understand how horizontal information and communications technology (ICT), such as cell phones, social media systems, and the Internet has impacted a particular mode of collective action. *Through quantitative analysis, this study examines the relationship between social media penetration and peaceful protests within autocratic, anocratic, and democratic regimes.* The resultant models identify a clear positive relationship between social media and **peaceful protest**.

For the purposes of this thesis, the terms social media and horizontal ICT are used interchangeably. These terms represent the means by which members of a society can collaborate outside of traditional communication methods. For example, organizing and communication capabilities that were once limited to landlines or mass media are now available to the individual in a single device. A simple cellular phone is now capable of

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[1] Philip N. Howard and Muzammil M. Hussain, *Democracy's Fourth Wave?: Digital Media and the Arab Spring* (Oxford: Oxford University Press, 2013), PDF.

several functions, such as surfing the Internet, visiting social media sites, and calling friends and families. These terms seek to encompass the capabilities of this ubiquitous technology, distinct from last generation ICTs.

In the sections that follow, the authors review the relevant literature on collective action, peaceful protest, regime types, and ICT. Based on the existing body of knowledge, the authors hypothesize—relative to increased social media penetration—democratic regimes will have decreasing episodes of peaceful protests, autocratic and anocratic regimes will experience increased levels of protests, regimes with high rural populations will experience greater increases in levels of peaceful protest, and regimes with high levels of ethnic fractionalization will experience greater increases in peaceful protest. The authors employed a negative binomial, multivariate regression analysis on multiple open source datasets to test each hypothesis.

Ultimately, the research identifies that there is a fundamental association between the levels of protest, regime type, and social media among the world's polities. The analysis indicates complex interactive relationships between regime type, social media, and other variables. The findings suggest that social media lowers transaction costs, facilitates coordination and mobilization, and contributes to a normative effect promoting peaceful expressions of collective actions within anocratic regimes. In addition, assumptions that ethnic diversity and low rural populations are indicators for high levels of protests are challenged, as the opposite effect actually appears to be the case. Based on these findings, the authors conclude with possible policy implications and areas for further inquiry.

A better understanding of the social media conditions necessary and sufficient for collective action, namely peaceful protest, to emerge within polities will prove beneficial to policy makers. A clearer understanding of this phenomenon may assist policy makers in identifying and responding to emergent collective activities. As a result, leaders may make informed decisions when weighing whether or not to intervene in this issue. In addition, the research will add to the growing literature on social media's effect on populations, conflict, and government.

II.   LITERATURE REVIEW

Before analyzing empirical data, it is important to understand the key mechanisms involved in peaceful protest*s* and varied regime types, as well as the established effects of horizontal ICT on other forms of collective action. Though far from exhaustive, this chapter provides context; by breaking the problem down into its component parts, it becomes possible to comprehend what amounts to a complex system requisite for organization and mobilization.

A.   COLLECTIVE ACTION

Peaceful protest fits into the broader spectrum of collective action. It is impossible to completely parse protest from collective action, therefore a basic understanding of applicable perspectives on collective action are in order. This conversation will be focused around the use of horizontal ICT to facilitate collective action and to overcome collective action barriers. Overall, the section summarizes traditional views of collective action and suggests that the expanded theory provides more explanatory power in today's technology rich environment.

Bimber and Flanagin note that the literature in this field includes research on "social movements, voting behavior, membership in interest groups, the operations of the NATO alliance."[2] According to Olson, collective action requires formal organization and communality to succeed in achieving the group's common goal. In the same vein, he asserts that smaller groups are more effective at accomplishing a public good than larger groups.[3] However, Bimber and Flanagin propose an expanded theory on collective action that attempts to cover the technological gap, created from the time of Olson's publication to the present. Specifically, they assert that the ease of Internet access has lowered individual transactional costs and facilitated transmitting private concerns over a public

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[2] Bruce Bimber, Andrew J. Flanagin and Cynthia Stohl, "Reconceptualizing Collective Action in the Contemporary Media Environment," *Communication Theory* 15, no. 4 (2005), 365.

[3] Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge, Mass: Harvard University Press, 1965).

network. Of note, they claim, "when that boundary [between private and public] is crossed by two or more people in conjunction with a public good, a collective action has occurred."[4] The expanded theory builds on previous collective action parameters by adding that it is an individual's conscious decision to cross over from private communications to public communications with a goal to further pursue public good and influence others that create a new domain for collective action.[5]

In essence, this may explain how groups without any coherent organization may achieve overarching goals despite traditional communication barriers. The Internet may provide the perceived anonymity and forum for individuals to contribute to an overall movement without inheriting the dangerous costs of more overt dissent methods. Thus, ultimately bringing groups together faster, more focused, and better logistically prepared to meet the government when the timing is right. Hence Bimber and Flanigan acknowledge that blogs sufficiently demonstrate this crossover from the public to the private realm.[6] For example, one could start a public blog without an organizational following, yet unwittingly they have created a blog that supports a public good, and if the government possesses weak institutions or a weak bureaucracy, the blogger may escape consequences or perhaps garner a following large enough to begin a larger movement.

This action would mark the crossover from the private to the public domain as put forth by Bimber and Flanagin. As demonstrated, the blogger required neither of the previously mentioned tenets to convey his idea to the public, and it is through this medium that certain polity types may face obstacles when protesters promote their cause through ICT. Bimber and Flanagin's expanded definition along with Olson's traditional premises provide the collective action account for this thesis, and may explain how social media may positively or sometimes negatively influence peaceful protest*s*; a subset of collective action.

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[4] Bimber, Flanagin and Stohl, "Reconceptualizing Collective Action," 377.

[5] Ibid., 365.

[6] Ibid., 381.

With the emergence of social media and horizontal communication technologies, the collective action landscape has also evolved. As noted by Bimber and Flanagin, their theory does not replace Olson's thoughts on the subject, but it does provide an updated perspective on the evolving times in communication and collective action.[7] Having established a point of departure for collective action the thesis will explore peaceful protest more closely in the following section.

B.   PEACEFUL PROTEST

This section will review the peaceful protest cycle. Understanding the protest cycle assists the research with providing relevant implications on how peaceful protest may unfold under differing polities. Tarrow notes that viewed holistically, collective action emerges from a cycle of protest in which heightened conflict arises "across the social system".[8] Protests experience geographic and sectoral diffusion then organize as a social movement that attempts to frame new meanings of old ideas. It is the compilation of ideas and old definitions that potentially create a volatile mixture. In other words, conflict does not emerge, but grows out of the diffusion of ideas and the efforts to actively organize a protesting social movement. A case study of Italian collective action in the 1960–70s, demonstrates that Italians preferred a peaceful protest strategy for years before eventually escalating peaceful protest to more violent forms of collective action.[9]

The aforementioned protest cycle lens is useful, but arguably insufficient to explain the emergence of protest as a distinct form of collective actions that does not ultimately lead to violence. Opp advocates a theory of resource mobilization, which posits that movements acquire resources and then mobilize the resources toward achieving its objectives. Protest cycles are empowered by political opportunity structures. Using these tools and the accumulation of research, Opp offers a definition for collective action, "joint [i.e., collective] action of individuals aimed at achieving their goal or goals

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[7] Bimber, Flanagin and Stohl, "Reconceptualizing Collective Action."

[8] Sidney Tarrow, "Cycles of Collective Action: Between Moments of Madness and the Repertoire of Contention," *Social Science History* 17, no. 02 (1993), 284.

[9] Tarrow, "Cycles of Collective Action," 281–307.

by influencing decisions of a target."[10] Though useful, this definition is too broad for the purposes of this research.

Previous research into the efficacy of nonviolent resistance movements, by Stephan and Chenoweth offers a simple yet comprehensive definition for nonviolent collective action, "Nonviolent resistance is a civilian-based method used to wage conflict through social, psychological, economic, and political means without the threat or use of violence."[11] Ultimately, their research finds that nonviolent methods are twice as likely to succeed at achieving their objectives than are violent ones.

Peaceful protest may follow a predictable cycle, but it appears to unfold differently for each country. For example, during the time span 2011–2013, Libya experienced 11, 41, and 48 peaceful protest*s* each year respectively; Egypt's neighbor, however, experienced 40, 206, and 196 during the same years.[12] This is important because the time encompasses the Arab Spring and highlights the disparity in peaceful protest numbers between neighboring countries. By 2013, Egypt would remain relatively stable with its military clamping down on the populace, while Libya would fall into disarray. Yet, other countries experience different levels of intensity, such as Italy's peaceful protest in the 1960s.[13]

C.   REGIME TYPES

This section will discuss the literature covering the different regime types and then explore the propensity for different regimes to experience collective action in general. This analysis adopts three polity types—autocratic, anocratic, and democratic—as broad categories all states fall within. Further, the section will demonstrate that collective action, specifically collective violence, will manifest itself uniquely under different regimes in the following ways: autocratic and democratic regimes will appear to

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[10] Karl-Dieter Opp, *Theories of Political Protest and Social Movements: A Multidisciplinary Introduction, Critique, and Synthesis* (New York: Routledge, 2009), 44.

[11] Maria J. Stephan and Erica Chenoweth, "Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict," *International Security* 33, no. 1 (Summer 2008): 9, doi:10.1162/isec.2008.33.1.7.

[12] Idean Salehyan et al., "Social conflict in Africa: A new database." *International Interactions* 38, no. 4 (2012): 503–511.

[13] Tarrow, "Cycles of Collective Action."

be the two most stable types and anocratic regimes will appear the weakest of the three. Although the thesis is primarily concerned with peaceful protest, understanding collective violence characteristics may provide insight into the limited data on peaceful protest. Altogether, the section will serve as a point of departure for the thesis to analyze peaceful protest within the different regimes.

The Polity IV Project measures key indicators within a government, such as the constraints on executive control and internal political competition and assigns countries a polity score along a 21-point scale that ranges from -10 (autocratic regime) to 10 (fully democratic regime).[14] These discreet scores are then used to assign states into three sub-groups: autocracies, anocracies, and democracies.[15] Autocratic regimes are those governments that suppress their populations voting rights, whose leaders are chosen by a select elite, and whose elites and leaders normally experience few institutional constraints on their powers.[16] In contrast, democratic regimes are those having three interdependent elements. The first of these is the population's access to institutions that allow them to express their dissatisfaction or appreciation of policies and leaders. The second element is the inherent restraints that the country places on its executive power. In other words, the executive branch does not possess the sole power to make decisions without facing institutional barriers or consequences. The third characteristic is that the country provides guaranteed rights for liberty and freedom to every citizen. Yearly, Polity IV weighs the aforementioned criteria to measure a country's autocratic or democratic score.

Not every country fits neatly into either a purely autocratic or democratic category, as there are countries that fall along a spectrum in between. This thesis places these countries into the "anocractic regime" category. Anocratic regimes share both characteristics of democratic and autocratic regime qualities; yet do not measure high

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[14] Monty G. Marshall, Ted Robert Gurr, and Keith Jaggers, "Polity IV: Political Regime Characteristics and Transitions, 1800–2014," *Center for Systemic Peace*, last modified 2014, http://www.systemicpeace.org/inscrdata.html.

[15] Center for Systematic Peace, "The Polity Project," *Center for Systematic Peace*, last modified 2014, accessed May 19, 2016, http://www.systemicpeace.org/polityproject.html.

[16] Marshall, Gurr, and Jaggers, "Polity IV."

enough on either scale to be placed into one category exclusively.[17] Polity IV performs yearly measurements, such that a country may move up or down the autocratic or democratic scale, depending on it attributes for the observed year. Placing regimes within categories provides a basic understanding of its outward characteristics allowing the researchers to categorize regime types for efficient statistical analysis.

While the Polity IV metric provides neat bins to categorize states, not all regimes within a particular bin are the same. Washman et al., characterize authoritarian regimes into those run by military leaders, a monarchy, multi-party authoritarianism, one party authoritarian, no-party, and finally, hybrids of the aforementioned categories.[18] Geddes et al. offer a similar breakdown of authoritarian regime types; dominant party, military, personalist, monarchic, oligarchic, indirect military and hybrid.[19] This approach focuses on leadership's personalities. Alternatively, Cheibub, Gandhi, and Vreeland present a schema, which is concerned primarily with the leader's means of succession, binning authoritarian regimes into three categories, military, monarchy, and civilian.[20]

Democracies also have competing descriptions, characteristics, and typologies. Most notable is Lijphart's breakdown where he describes democracies four distinct subtypes namely depoliticized, consociational, centripetal, and centrifugal democracies. His categorization primarily focused on the political elite behavior relationship with the political culture.[21] Schedler asserts democracies must meet the following conditions to fulfill the democratic promises; empowerment of its citizens, free supply, free demand,

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[17] Monty G. Marshall and Benjamin Cole, *Global Report 2014: Conflict, Governance and State Fragility* (Vienna, VA: Center for Systematic Peace, 2014), http://www.systemicpeace.org/vlibrary/GlobalReport2014.pdf.

[18] Michael Wahman, Jan Teorell and Axel Hadenius, "Authoritarian Regime Types Revisited: Updated Data in Comparative Perspective," *Contemporary Politics* 19, no. 1 (2013), 19–34, 31.

[19] Barbara Geddes, Joseph Wright and Erica Frantz, "Autocratic Breakdown and Regime Transitions: A New Data Set," *Perspectives on Politics* 12, no. 02 (2014), 313–331.

[20] José Antonio Cheibub, Jennifer Gandhi and James Raymond Vreeland, "Democracy and Dictatorship Revisited," *Public Choice* 143, no. 1–2 (2010), 67–101.

[21] Arend Lijphart, "Typologies of Democratic Systems," *Comparative Political Studies* 1, no. 1 (1968), 3.

universal inclusion for voting, freedom to express differences without repression, integrity, and a certainty that elected officials will remain in office.[22]

Though these approaches have their merits, they create data sets that are inadequate for broad statistical analysis. For example, the monarchy category under Geddes et al. produces a sample size too small to draw any significant correlations. Alternatively, as in the case with Schedler's descriptions, the characteristics are too vague and require that the research of each polity to determine if it is in fact democratic before continuing with a statistical analysis. In contrast, the Polity IV database includes all regime types and their subcategories that fall within the authoritarian, anocratic, and democratic bins, creating a population adequately scoped to measure significant statistical effects. More importantly, Polity IV takes into account the key elements that the thesis hypothesizes will be crucial to patterns of violence and peaceful conflict.

Within the collective violence literature, scholars have traditionally attributed fundamental characteristics to the three regime categories. Hegre has demonstrated that when the three polities are viewed as a graph, violence within regimes depicts an inverse "U", with democratic and authoritarian regimes anchoring the ends and the intermediate regimes or transitioning regimes carrying the burden of instability and conflict.[23] In a similar vein, Henderson identifies democracies, as resilient institutions that repress its population the least of all other regime types.[24] Moving to authoritarian regimes, Kalathil and Boas demonstrate that authoritarian regimes reserve a capability to effectively oppress their populations' access to media, thus stifling its dissenters from spreading infectious ideologies through ICT.[25] Furthermore, Regan and Henderson indicate that intermediate, anocratic regimes tend to oppress populations to overcome inherently weak

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[22] Andreas Schedler, "The Menu of Manipulation," *Journal of Democracy* 13, no. 2 (2002), 36–50.

[23] Håvard Hegre et al., "Toward a Democratic Civil Peace? Democracy, Political Change, and Civil War, 1816–1992," *American Political Science Review* 95, no. 1 (March 2001): http://www.uky.edu/~clthyn2/PS439G/readings/hegre_et_al_2001.pdf.

[24] Conway W. Henderson, "Conditions Affecting the use of Political Repression," *Journal of Conflict Resolution* 35, no. 1 (1991), 120–142.

[25] Shanthi Kalathil and Taylor C. Boas, "The Internet and State Control in Authoritarian Regimes: China, Cuba and the Counterrevolution," *First Monday* 6, no. 8 (2001).

government institutions, thus leading to more internal strife as the population recognizes an opportunity to achieve its goals in the face of a perceived weaker government.[26]

These same intermediate regimes, Vreeland argues, "allow dissidents to organize, but nonviolent collective action may be too restricted to be effective. In this context, violence is more likely to be seen as the most effective recourse for dissidents, and the state reacts with violence accordingly."[27] Pierskalla calls this phenomenon the "murder in the middle" concept.[28] When faced with an option these same regimes may lean toward compromise as a means to assuage their populations. Therefore, given the cumulative research, the authors expect to see higher numbers of protest within anocractic regimes.

D.   HORIZONTAL ICT

Incidents, such as the Arab Spring, suggest that ICT is playing an ever-increasing role in world politics and therefore its effects warrant further investigation. This section will outline the research concerning horizontal ICT's influence on contentious collective action and question whether horizontal ICT has the capability to fundamentally change the societal landscape. The section will present compelling evidence that horizontal ICT has the potential to lower transaction costs among the population and possibly increase protestors' ability to facilitate coordination in the face of an oppressive government.

Warren posits that mass media has a normative effect on the population, discouraging large-scale civil violence.[29] There is, however a distinct difference between "receive only" mass media systems and the "two way communication" of new media systems such as cell phones and the Internet. These new horizontal ICTs will have differing effects on mobilization than did their predecessors. Though, as Little points out,

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[26] Patrick M. Regan and Errol A. Henderson, "Democracy, Threats and Political Repression in Developing Countries: Are Democracies Internally Less Violent?" *Third World Quarterly* 23, no. 1 (2002), 119–136.

[27] James Raymond Vreeland, "The Effect of Political Regime on Civil War Unpacking Anocracy," *Journal of Conflict Resolution* 52, no. 3, 2008, 402.

[28] Jan Henryk Pierskalla, "Protest, Deterrence, and Escalation: The Strategic Calculus of Government Repression," *Journal of Conflict Resolution*, December 10, 2009, doi:10.1177/0022002709352462.

[29] T. Camber Warren, "Not by the Sword Alone: Soft Power, Mass Media, and the Production of State Sovereignty," *International Organization* 68: doi:10.1017/S0020818313000350.

publication of anti-regime sentiment via ICT has not, to date, demonstrated a definitive causal relationship.[30]

The role of ICT in collective violence and conflict is the topic of great debate especially in the context of modern conflicts such as the Arab Spring of 2011. Empirical evidence is contradictory on the role of cell phone technology on anti-regime action. Research in Africa finds direct correlations between ICT and collective violence, suggesting a positive relationship,[31] though scholars are uncertain whether ICT reduces makes collective violence easier to coordinate or if it has a normative effect on the "economies of scale in the marketplace of ideas."[32] However, a similar study by Shapiro and Weidmann, in occupied Iraq, finds that diffusion of ICT actually prevents such activity, though it is possible that USG counterinsurgency efforts have skewed the data toward non-violence.[33]

Little argues that horizontal ICT's effect on collective action lowers transaction costs, increases logistical coordination, and may in fact facilitate organized dissention against a regime.[34] For example, Aday et al. and Zhuo et al. claim that social media played an important role in the Arab Spring.[35] Specifically in the 2011 Egyptian Revolt, horizontal ICT "intertwined with the development of formal organizations, informal networks, and external linkages provoking a growing sense of modernity and community,

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[30] Andrew T. Little, "Communication Technology and Protest" (working paper, Department of Government, Cornell University, Ithaca, NY, January 2015).

[31] Jan H. Pierskalla and Florian M. Hollenbach, "Technology and Collective Action: The Effect of Cell Phone Coverage on Political Violence in Africa," *American Political Science Review*, May 2013, doi:10.1017/S0003055413000075.

[32] T. Camber Warren, "Explosive Connections? Mass Media, Social Media, and the Geography of Collective Violence in African States," *Journal of Peace Research* 52, no. 3: doi:10.1177/0022343314558102.

[33] Jacob N. Shapiro and Nils B. Weidmann, "Is the Phone Mightier than the Sword?: Cell Phones and Insurgent Violence in Iraq" (working paper, Department of Politics and Woodrow Wilson School, Princeton University, Princeton, NJ, October 28, 2013), http://wws.princeton.edu/faculty-research/research/item/phone-mightier-sword-cell-phones-and-insurgent-violence-iraq.

[34] Little, "Communication Technology and Protest."

[35] Sean Aday et al., *Blogs and Bullets: New Media in Contentious Politics*, report no. 65 (Washington, D.C.: United States Institute of Peace, 2010), http://www.usip.org/sites/default/files/pw65.pdf and Xiaolin Zhuo, Barry Wellman and Justine Yu, "Egypt: The First Internet Revolt?" *Peace Magazine* 27, no. 3 (2011), 6–10.

and globalizing support for the revolt."[36] Critics of the positive effects of ICT on collective action mobilization, suggest that the use of these ICTs only exists to the extent that the regime allows. They argue that the regime can limit access to systems or use them to monitor, track, and even eliminate dissidents or otherwise disaffected individuals.[37] Indeed, this critique may hold true for the Egyptian revolt in particular; however, the widespread reach of the Arab Spring into other Arab nations may demonstrate new media's positive influence on political unrest.

On the contrary, Rod and Weidmann are skeptical of the Internet's ability to fundamentally change societal landscape. Their research posits that the Internet does not have the revolutionary power to usher forward liberty or democracy, as is often claimed. While acknowledging that the Internet unifies, they assert that strong authoritarian regimes use the Internet's power to further their objectives and stifle dissidents; the Internet is repressive when applied in this manner.[38] To illustrate this point further, Groshek exemplifies how China employs numerous techniques, such as its "Great Firewall" and government-employed Internet police, to filter Internet users' content. China's restrictions demonstrate how strong authoritarian regimes can effectively control their populations' Internet access. Despite China's restrictive communication policies, its population has found methods to bypass security measures.[39] Milner furthers this line of argument, stating that authoritative governments adopt Internet less readily than their democratic counterparts, thus retarding potential for democratic growth.[40] Groshek's example also demonstrates that populations under strict regimes can bypass restrictions, thus providing a small opportunity for individuals to spread their ideas.

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[36] Zhuo, Wellman, and Yu, "Egypt: The First Internet Revolt?" 9.

[37] Anita R. Gohdes, "Pulling the Plug: Network Disruptions and Violence in Civil Conflict," *Journal of Peace Research* 52, no. 3 (2015): doi:10.1177/0022343314551398 and Chris Edmond, "Information Manipulation, Coordination, and Regime Change," *Review of Economic Studies* 80 (July 4, 2013): doi:10.1093/restud/rdt020.

[38] Espen Geelmuyden Rød and Nils B. Weidmann, "Empowering Activists Or Autocrats? the Internet in Authoritarian Regimes," *Journal of Peace Research* 52, no. 3 (2015), 338–351.

[39] Jacob Groshek, "The Democratic Effects of the Internet, 1994—2003 A Cross-National Inquiry of 152 Countries," *International Communication Gazette* 71, no. 3 (2009), 115–136.

[40] Helen V. Milner, "The Digital Divide the Role of Political Institutions in Technology Diffusion," *Comparative Political Studies* 39, no. 2 (2006), 176–199.

Some may question if a causal relationship exists at all between horizontal ICT and collective action mobilization; perhaps participants and observers merely reported it with greater frequency given the horizontal and immediate nature of new ICTs. The criticism is fair; however, Comunello and Anzera advise it is imprudent to assume previous relationships between old ICTs hold identically with new ICTs.[41] Nonetheless, Zhuo et al. assert that horizontal ICT served an important role in the Arab Spring. According to their research, technology allowed otherwise silent dissenters an opportunity to coalesce around a common grievance and to organize grievances into large-scale protests against an authoritative government.[42]

Thus, a digital revolution quickly engulfed the region rapidly spreading images of Tunisia's protest throughout the rest of North Africa. Additionally, they claim that the news outlets almost constant coverage, social media user's effectiveness with organizing times and locations for gatherings, and cellphones subscribers providing constant updates to the outside world contributed to the Arab's Spring fiery escalation.[43] Researchers of the Arab Spring argue ICTs integral role, yet they provide limited hard data in their research and rely more on personal testimony and anecdotal evidence.

Despite this limitation, the literature suggests regimes will experience similar outcomes with the increased spread of horizontal ICT. Tufecki and Wilson point out that ICT increases the population's ability to address dissatisfaction with the regime.[44] As a populations' access to ICT increases, governments with the least institutional capacity may experience the most disruption. Well-established authoritarian and democratic regimes may appear more resilient to ICT challenges, while anocratic or intermediate regimes may be more susceptible to disruptive influences.

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[41] Francesca Comunello and Giuseppe Anzera, "Will the Revolution Be Tweeted? A Conceptual Framework for Understanding the Social Media and the Arab Spring," *Islam and Christian–Muslim Relations* 23, no. 4: doi:10.1080/09596410.2012.712435.

[42] Zhuo, Wellman and Yu, "Egypt: The First Internet Revolt?"

[43] Ibid.

[44] Zeynep Tufekci and Christopher Wilson, "Social Media and the Decision to Participate in Political Protest: Observations from Tahrir Square," *Journal of Communication* 62, no. 2 (2012), 363–379.

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III. METHODOLOGY AND EMPIRICAL DATA

The following hypotheses are based on the authors' understanding of the preceding literature and. They were tested through the multivariate regression analysis described within the methodology section using existing published datasets.

A.   HYPOTHESES

H1: Autocratic regimes will experience higher numbers of peaceful protests as the level of social media penetration increases.

The first hypothesis challenges the authoritarian regime's capability to effectively oppress a populace who has access to horizontal ICT and the ability to organize protest. Under authoritarian regimes, citizens have little recourse available to challenge the government's policies. All collective action is relatively difficult to coordinate, especially under authoritarian regimes that limit free association and modes of speech. As mentioned previously, horizontal ICT facilitates logistical coordination for movements and speeds the spread of the underlying ideas that these movements form around.

Historically, some regimes have attempted to institute targeted or widespread social media blackouts as a strategy to stymie movements. Egypt's and Libya's Internet blackout in the wake of the 2011 Arab Spring is an ideal example of how authoritarian governments can oppress their populations.[45] This strategy, however, is fundamentally flawed, as the proverbial genie cannot be put back in the bottle.[46] Dunn notes that such censorship actions serve to undermine regime legitimacy in the eyes of the population and exacerbate the grievances the peaceful protest form around in the first place, while potentially creating disaffected regime supporters. Consequently, a country may even face international backlash in the wake of censoring media. Countrywide censorship

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[45] Alexandra Dunn, "Unplugging a Nation: State Media Strategy during Egypt's January 25 Uprising," Fletcher Forum of World Affairs 35 (2011): 15.

[46] Gohdes, "Pulling the Plug: Network," 5 and Navid Hassanpour, "Media Disruption and Revolutionary Unrest: Evidence From Mubarak's Quasi-Experiment," *Political Communication* 31, no. 1 (2014): 7, doi:10.1080/10584609.2012.737439.

targets the entire population regardless if they support, dissent, or are indifferent toward the government.

All regimes are motivated, to some extent, by their own self-preservation; however, authoritarian regimes are less constrained, than democratic ones, to use violence to quell the previously peaceful protest. Also strong authoritarian regimes must maintain legitimacy in the eyes of their populations but are not accountable at the ballot box, thus are more open to using violence as a means to control their populace.

H2:   Anocratic regimes will experience higher levels of peaceful protest as the level of social media penetration increases.

The thesis' second hypothesis concerns anocratic regimes' propensity for peaceful protest as its social media user rates rise. Anocratic regimes, or intermediate regimes, display both democratic and authoritarian characteristics. The leaders in these regimes are often holding onto power by a string, and the population may recognize this. Anocratic leaders may hold significant perceived power, yet their ability to wield it is limited by the weaknesses of their institutions. Thus, intermediate regimes may be more sensitive to higher levels of social media penetration. The aforementioned research suggests that these regimes are less stable and lack the political and security infrastructure as compared to their authoritarian and democratic counterparts. Therefore, anocratic regimes should have increased levels of protest organization as their social media index rises.

H3: Democratic states will experience a decrease in peaceful protests as the level of social media penetration increases.

The third hypothesis explores the idea that democracies have established institutions capable of answering the demands of its citizens; therefore, they will experience fewer protests. In democracies, citizens have political recourse to redress grievances. Peaceful protest is one of the tools available to the populace, but is secondary to achieving their desired changes at the ballot box. The researchers' initial descriptive statistics show that democracies typically have higher social media users, which may

positively correlate, as Khazaeli and Stockemer suggests, with good governance.[47] Additionally, as a medium to share and spread ideas and coordinate logistics, Tufekci and Wilson claim that social media enables movements to challenge the status quo in admittedly new ways, but that do not undermine the authority of democratic regimes.[48] The authors believe the rate of peaceful protest*s*, as a function of ICT availability, will decrease within democratic regimes. This implies that as ICT penetration increases within democratic regimes, the states existing infrastructure will be more responsive to its populaces grievances, thus decreasing its citizen's requirement to openly protest against the government.

H4: Regimes with more rural populations will experience greater increases in levels of peaceful protest as social media penetration increases.

The fourth hypothesis explores the differences between rural and urban populations. It is likely that rural populations, physically removed from seats of government and condensed populations, have reduced access to mass media infrastructure. They are therefore somewhat insulated from the normative effects of mass media. Horizontal ICT systems, however, bring rural populations into communications parity with previous centers of gravity in the market place of ideas. This empowerment is particularly poignant, because this is a segment in society that heretofore was almost entirely disenfranchised. Bylsma and Colby's research indicated a negative relationship between rural populations and civil conflict onset.[49] However, this research challenges their finding and posits that rural populations will experience greater levels of peaceful protest

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[47] Susan Khazaeli and Daniel Stockemer, "The Internet: A New Route to Good Governance," *International Political Science Review* 34, no. 5 (2013), 463–482.

[48] Tufekci and Wilson, "Social Media and the Decision to Participate."

[49] Colin D. Bylsma and Samuel T. Colby, "New Challenges to Authoritarian State Stability: The Proliferation of Modern Information Communications Technology" (master's thesis, Naval Postgraduate School, 2015).

H5: Regimes with higher levels of ethnic fractionalization will experience greater increases in levels of peaceful protest as social media penetration increases.

The fifth hypothesis joins the debate on ethnic division's role in social conflict and political regime stability. On one hand, Cederman and Girardin and Montalvo and Reynal-Querol suggest that ethnic fractionalization contributes to civil violence.[50] Although this group may differ on research approaches and variable selection, its overarching message is that ethnic divisions are positively correlated with civil violence. On the other hand, Fearon and Laitin point in the opposite direction, suggesting that ethnic fractionalization plays an insignificant role in contributing to civil violence.[51] However, the two bodies of research largely ignore social media's influence. This study leans on the preexisting literature to test two conflicting premises of social unrest to help develop a deeper understanding of social media's ability to overcome the collective action barrier within ethnically diverse polities.

B.   METHODOLOGICAL STEPS

This thesis begins with a unit of analysis at the country-year level. By choosing this level of analysis, the study avoids systematic difference within countries, such as the level of Internet penetration between rural and urban sections, and instead focuses on overarching trends across polities and within each polity over time. Despite the study's focus on country-level analysis, the research team took measures to control for fundamental differences amongst functioning polities, which the authors will describe in the following paragraphs.

1.   Analytical Time Period

To systematically analyze horizontal ICT within authoritarian regimes, the study limits observations to the years 1990–2011 and covers observation from over 60

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[50] Lars-Erik Cederman and Luc Girardin, "Beyond Fractionalization: Mapping Ethnicity Onto Nationalist Insurgencies," *American Political Science Review* 101, no. 01 (2007), 173–185.; Jose Garcia-Montalvo and Marta Reynal-Querol, "Ethnic Polarization, Potential Conflict, and Civil Wars," *Potential Conflict, and Civil Wars (July 2004).*

[51] James D. Fearon and David D. Laitin, "Ethnicity, Insurgency, and Civil War," *American Political Science Review* 97, no. 01 (2003), 75–90.

countries. The time span represents a period when intermediate and authoritarian regime's populations experienced a rapid growth in horizontal ICT access and use as compared to its democratic counterparts. Figure 1 depicts country's social media users growth within autocratic, democratic, and anocratic regimes and its rapid expansion during the 1990s. The blue line represents the yearly mean level of social media within democracies. The green line depicts the yearly mean level of social media within autocracies, and finally the red line depicts the yearly mean level of social media within anocracies. Of note, all three-regime types experience rapid social media growth, however, democracy's social media increases faster than its counterparts and remains ahead throughout to the end of the observed period. Interestingly, autocracies and anocracies expand at similar rates until autocracies experiences a drop in social media in 2011, which may coincide with wide spread regime change associated with the Arab Spring movement.
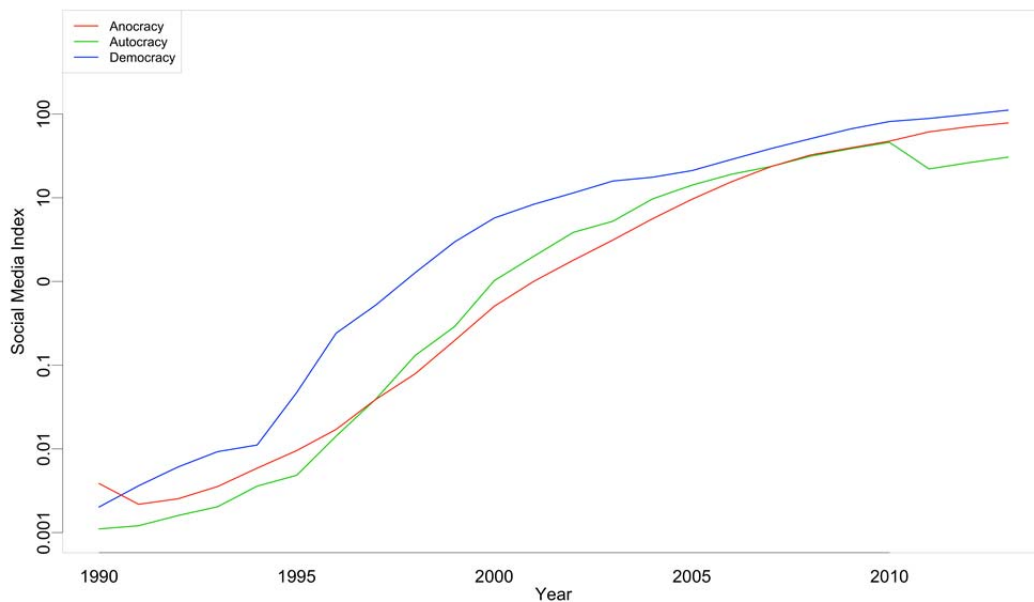

Figure 1.   Social Media Growth within Autocratic, Democratic, and Anocratic Regimes

2. Choosing and Defining the Variables

As previously mentioned, the purpose of this study is to glean important insights into overall regime susceptibility to peaceful protest as social media penetrates throughout its society. More specifically, it seeks to bring clarity to the often-debated relevance of horizontal ICT's effect within authoritarian regimes and to shed light on common ICT/peaceful protest trends. Consequently, the analysis pulls from reputable databases and scholarly work to build its models that the authors will use to rigorously test their hypotheses. As we discuss below, the study has identified a primary dependent variable, independent variable, and several control variables.

a. Dependent Variable—Peaceful Protest Count

The study's dependent variable is the count of *peaceful protests*. The authors' *peaceful protest* definition is in line with the Social Conflict in Analysis Database (SCAD) categories.[52] SCAD observes protests events within African countries and select Latin America and Caribbean countries from 1990–2014. SCAD divides its recorded social events into 10 categories. Six of the ten categories consist of protests with recorded acts of violence while the remaining four record only peaceful protests. As the study is mainly concerned with peaceful protest events, the researchers use the following categories from the SCAD data to define the *peaceful protest* variable: organized demonstrations, spontaneous demonstrations, general strikes, and limited strikes. Following along the collective action line of argument, the *peaceful protest* events include both large and small demonstrations with the number of protestors ranging from less than 10 to over 1,000,000.

b. Independent Variable—The Social Media Index

The primary independent variable under scrutiny is the level of horizontal ICT adoption amongst the world's polities. There are several sources from which to gather media data, such as the International Telecommunication Union database, cellular tower

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52 Idean Salehyan and Cullen Hendrix, *Social Conflict in Analysis Database Version 3.1* (Austin, TX: Strauss Center, 2014), https://www.strausscenter.org/codebooks/SCAD%203.1%20Codebook.pdf.

geo-locations, and databases that determine mass media availability.[53] However, this research borrows from previous research that combines the World Bank's, World Development Indicators (WDI), Internet access and cellular phone access rates to create a corresponding logarithmic **Social Media Index (SMI)** for each polity under scrutiny. In other words, per capita cellular access plus per capita Internet access equals the *SMI*. Bylsma and Colby then transform the *SMI* into a logarithmic expression in order to account for the variable's heavy upper tail.[54]

$$SMI = \log(Cell + Internet)$$

SMI provides an approximation of horizontal ICT within a given polity. The previous body of research resembles this study's unit of analysis. Additionally, WDI is an open source database with easily accessible data that researchers who are interested in replicating these results can quickly access.[55] Alternate approaches might exploit social media scraping or the use of other metrics such as spatial data on Internet routers and cellular towers. These approaches would invariably be useful in research that focuses on units of analysis lower than the country level, but that lays beyond the scope of the current study.

c.   *Control Variables*

To ensure that the analysis considers additional factors, which may affect *peaceful protest*, the study includes control variables common to the study of social conflict. Intuitively, one may argue that high **ethnic fractionalization** may be a consistent predictor in determining a population's propensity towards internal violence or protest. Indeed, previous studies have suggested that *ethnic fractionalization*, while not the strongest predictor, contributes to civil unrest.[56] Yet, Warren asserts that *ethnic fractionalization*, within countries with mass media access, does not significantly

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[53] Warren, "Not by the Sword Alone."

[54] Bylsma and Colby, "New Challenges to Authoritarian State Stability."

[55] The World Bank, "World Development Indicators," last modified February 2016, http://data.worldbank.org/data-catalog/world-development-indicators

[56] Tanja Ellingsen, "Colorful Community or Ethnic Witches' Brew? Multiethnicity and Domestic Conflict during and after the Cold War," *Journal of Conflict Resolution* 44, no. 2 (2000), 228–249.

contribute to civil unrest.[57] Likewise, Fearon and Laitin assert that when controlled for per capita income, *ethnic fractionalization* does not significantly contribute to civil violence.[58] This study employs Sambanis' civil war database to control for *ethnic fractionalization*. This data set measures the percentage of *ethnic fractionalization* within each polity under scrutiny.[59]

In order to capture **population** and **gross domestic product (GDP)** per capita, this thesis employs the WDI database from the World Bank. Both variables exhibited heavy tailed distributions. Consequently, they are logarithmically transformed to represent a more normal distribution, enabling meaningful results when incorporated into the negative binomial regression model. This study also accounts for **rural population** percentages, also located within the WDI database.

One may interpret that media restriction, freedom will affect a population's ability to organize, or that authoritarian regimes will stifle dissent too quickly for protest to manifest. Kalathil, a proponent of this argument, posits that authoritarian regimes have effectively censored their population's ICT as in the case with Cuba.[60] One would expect a noticeable decrease in *peaceful protest* relative to the level of restriction within authoritarian regimes, regardless of the levels of *SMI*. In order to account for media freedom, this study employs the Freedom House Index to measure the degree to which mass media is restricted within each polity.[61] The index depicts free press scores for countries from 1989 to 2011; however, for the periods 1989 to 1993 only qualitative scores are available, while for 1993 forward the database includes quantitative measures. To reconcile, each qualitative measure was assigned an approximation of its quantitative equivalent, and for countries that had gaps in coverage, the previous year's value was

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[57] Warren, "Not by the Sword Alone*,"* 111–141.

[58] Fearon and Laitin, *Ethnicity, Insurgency, and Civil War*, 75–90

[59] Nicholas Sambanis, "What is Civil War? Conceptual and Empirical Complexities of an Operational Definition," *Journal of Conflict Resolution* 48, no. 6 (2004), 814–858.

[60] Kalathil and Boas, *"The Internet and State Control."*

[61] Freedom House, "Freedom of the Press Index," The Media Map Project, accessed April 30, 2016, http://www.mediamapresource.org/the-data/#.

moved forward.[62] Although the data represents mass media freedom, this study assumes the value is a fair approximation of a country's will to provide its groups or individuals free or restricted access to ICT. Comparable measurements of Internet freedom were incomplete or failed to fall within this analysis' observed periods. Using a binary measurement, this study divides media restriction into two categories of *press restriction*, restricted (1) or unrestricted (0), with countries that restrict their population's media access belonging to the former and those with free access belonging to the latter.

d.   *Regime Classification*

Since this study's primary focus is regime type, it employs the Center for Systemic Peace's, Polity IV score, to categorize these regimes.[63] As previously noted, Polity IV is composed of a 21-point system. Because the primary research question focused on authoritarian regimes, the 21-point system was simplified into three categories: *democracy*, *autocracy*, and *anocracy*. Each qualitative value was created as a dummy variable and corresponding qualitative values were assigned *autocracy* (n = 254) ≤ -6, *anocracy* (n = 636) ≥ -5 and ≤ 5, and *democracy* (n = 518) ≥ 6, based on the Center for Systematic Peace metric.[64] Additionally, each state's Polity value is included as a linear control variable, *democratization score*.

3.   Regression Model

The negative binomial regression model was chosen for this study, because the dependent variable, *peaceful protest*, is a count variable with considerable over-dispersion. Furthermore, the variance amongst *SMI* adoption rates varies as countries adopted ICTs at differing rates throughout the years. The negative binomial regression accounts for the dispersion within the dependent variable allowing the regression model to predict results that are in line with the dependent variable and control variable's observed patterns. The regression model and corresponding figures and tables contained

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[62] Authors note: The researchers categorized values equal to or greater than seventy as restricted. The researchers assigned restricted media a 1 and unrestricted media a 0. For qualitative measurements, if the measurement was partly free or restricted, the researchers assigned the variable a 1 for restricted.

[63] Marshall, Gurr, and Jaggers, "Polity IV," *Center for Systematic Peace*.

[64] Center for Systematic Peace, "The Polity Project," *Center for Systematic Peace*.

within this study are derived from the aforementioned datasets and the authors' original analysis using the R programing language and software environment.

4. ICT and Regime Types

Because this study intends to explore the effect *SMI* within particular polities has on protest events, an interaction term was chosen rather than a purely additive model. The analysis will focus on three polity types: autocracies, anocracies, and democracies. Additionally, the regression models have been developed to analyze the interaction between *SMI* and *anocracy*; *SMI* and *autocracy*; and, *SMI* and *democracy*. For example, each country score ≤ -6 on the polity scale is placed into the *autocracy* category and is assigned a binary score of one, while its counterparts received a zero. Once assigned, the target polity group is multiplied with its corresponding *SMI* score. The researchers repeat this method with the remaining polity categories.

By creating interaction variables, the study assumes that the *SMI* and regime type relationship are interactive as opposed to purely additive. In other words, *peaceful protest* may be dependent on the interaction between the regime type and *SMI* penetration, as proposed in Hypotheses 1–3. This suggests that *SMI* may have a more complex relationship with our dependent variable, than has been recognized in previous research. Similarly, to test for the possibility of interactive effects with *rural populations* and ethnic divisions, as proposed in Hypotheses 4 and 5, we include multiplicative interaction terms between *SMI* and *rural population*, and between *SMI* and *ethnic fractionalization*

IV. ANALYSIS OF EMPIRICAL DATA

The relationship between peaceful protest events and the *SMI*, given by the bivariate regression depicted in Figure 2, tells an intuitive story that appears to support the underlying assumptions at the core of this research: there is in fact a strong positive relationship between *SMI* and protests. The blue line shows the expected number of protests in a given country-year, at varying levels of *SMI*, while the gray bands show 95% confidence intervals for the expected values. Figure 2 demonstrates that, in the aggregate, as a state's *SMI* capacity increases, so, too, does the occurrence of protest events. These findings support notions that horizontal ICT is in fact a catalyst for change, with an average of over two protests at the low end of *SMI* capacity, nearly quadrupling to over seven protests at the opposite extreme. The subsequent models presented in this study control for *GDP* and other variables such as population size and demographic concerns in order to further isolate the effects of *SMI* and political regime types.
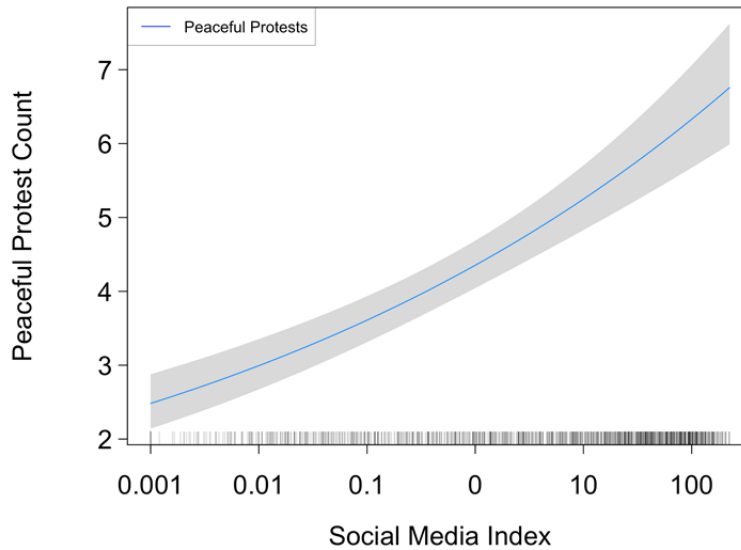
Figure 2.   Peaceful Protests as a Function of the Social Media Index

A. RESULTS OF THE REGRESSION MODELS

In the previous discussion, this thesis hypothesized that *SMI* would exacerbate protests in autocracies, that it would have a negative effects on democracies, and it would increase protests results in anocracies. The researchers further hypothesized that these effects would be stronger in the presence of *rural populations* and *ethnic fractionalization*. Table 1 depicts the regression models testing hypotheses H1 through H5.

Table 1.   Regression, Dependent Variable—Peaceful Protest Count[65]

	Model 1	Model 2	Model 3	Model 4	Model 5
SMI		0.119*** (0.022)	0.176*** (0.031)	0.034 (0.030)	0.497*** (0.109)
GDP	0.261** (0.111)	0.183* (0.110)	0.337*** (0.111)	0.360*** (0.111)	0.294*** (0.110)
Population	1.299*** (0.070)	1.238*** (0.070)	1.212*** (0.069)	1.207*** (0.069)	1.208*** (0.069)
Ethnic Fractionalization	-0.541*** (0.127)	-0.464*** (0.126)	-0.481*** (0.129)	-0.488*** (0.128)	-0.445*** (0.130)
Rural Population	-0.006** (0.003)	-0.004 (0.003)	-0.001 (0.003)	-0.001 (0.003)	-0.002 (0.003)
Press Restrictions	0.428*** (0.115)	0.406*** (0.115)	0.269** (0.116)	0.304*** (0.116)	0.444*** (0.126)
Democratization Score	-0.002 (0.007)	-0.009 (0.007)	0.038*** (0.014)	0.002 (0.007)	0.035** (0.014)
Autocracy			0.035 (0.142)		0.028 (0.141)
Democracy			-0.675*** (0.146)		-0.532*** (0.147)
SMI * Ethnic Frac					-0.215*** (0.077)
SMI * Rural Pop					0.001 (0.001)
SMI * Press Rest					-0.280*** (0.073)
SMI * Autocracy			-0.068 (0.054)		-0.087 (0.055)
SMI * Democracy			-0.164*** (0.047)		-0.295*** (0.057)
Anocracy				0.360*** (0.079)	
SMI * Anocracy				0.136*** (0.041)	
Constant	-8.264*** (0.718)	-7.752*** (0.715)	-7.894*** (0.710)	-8.306*** (0.710)	-7.893*** (0.705)
Observations	1,344	1,344	1,344	1,344	1,344
Log Likelihood	-3,213.621	-3,199.647	-3,179.034	-3,184.112	-3,168.749
theta	0.831*** (0.043)	0.857*** (0.045)	0.899*** (0.047)	0.891*** (0.047)	0.920*** (0.049)
Akaike Inf. Crit.	6,441.242	6,415.293	6,382.067	6,388.225	6,367.497

Note: *p<0.1; **p<0.05; ***p<0.01

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[65] Coefficients from negative binomial regressions. Standard errors in parentheses.

Model 1 presents the control variables *GDP*, *population*, *ethnic fractionalization*, *rural population*, *press restrictions*, and *democratization score*. The protest inducing effect of *GDP*, *population* and *press restrictions* are all positive and statistically significant ($p < 0.05$) while *ethnic fractionalization* and *rural population* are negative and statistically significant ($p < 0.05$). Model 2 builds on the previous iteration with the addition of the independent variable, *SMI*, which is both positive and statistically significant ($p < 0.01$). The control variables, *GDP*, *population,* and *press restrictions* all remain positive and statistically significant ($p < 0.1$). Model 3 builds further with the inclusion of an interaction term between *SMI* and the polity types *autocracy* and *democracy*. The protest inducing effect of *SMI* on *democracy* is negative and statistically significant ($p < 0.01$).

Because of the limitations imposed by the "dummy" variable used to characterize regime types, Model 4 replaces *autocracy* and *democracy* with a binary distinction between *anocracy* and all other polity types. The apparent protest inducing effect of *SMI* on anocracies is positive and statistically significant ($p < 0.05$). The sign and significance of *GDP*, *population*, *ethnic fractionalization*, and *press restrictions* remain unchanged from Model 3 to Model 4. Figure 3 depicts the interaction between *SMI* and regime type, identified in Model 4, showing the predicted count of protests based at corresponding values of the logarithmically transformed *SMI*, with all other variables held constant at their means.
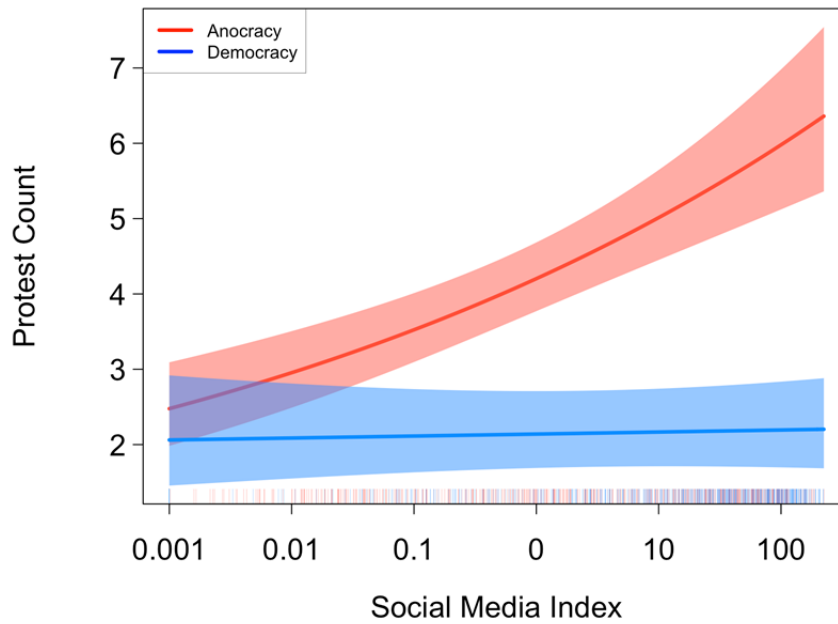
Figure 3.   Peaceful Protests within Anocracies and Democracies as a Function
of the Social Media Index (Model 3)

The blue line in Figure 3 represents the predicted count of protests within democracies at the corresponding value for *SMI*. A 95% confidence interval for that predicted count is shown with the blue shaded region. At low levels of *SMI*, democracies experience two protests annually, which remains static across the *SMI* spectrum. This refutes H3, which predicted that democratic states would experience a decrease in *peaceful protests* as the level of social media penetration increases. Similarly, the red line denotes the predicted count of protests within anocracies at each value of *SMI*. The 95% confidence interval is illustrated with the red shaded area. Anocratic regimes experience fewer than three protests a year initially and more than doubles to approximately six at the upper limits of the *SMI*. This finding directly supports H2, which predicted that anocratic regimes would experience increasing levels of *peaceful protest* as social media penetration increases. Given the incoherent mix of democratic and autocratic tendencies inherent to *anocracy*, it seems that these regimes lack the systems to effectively respond to their populations' grievances in a meaningful way.[66]

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[66] Marshall and Cole, *Global Report 2014*, Center for Systematic Peace.

According to our results, *anocracy*, more than any other polity, is associated with increased protest, especially when faced with higher levels of social media penetration. Populations within anocractic regimes are difficult to generalize because of the diversity of polities that lead to that classification. However, taken together anocratic regimes have weak political, social, and bureaucratic institutions and civil societies. The reduced transaction costs offered by *SMI* in such settings prove incredibly efficacious in mobilizing the population in ways the regime has little experience dealing with and for which it possesses no effective response mechanism. Alternatively, the presence of *SMI* appears to have a negligible effect on the occurrence of protests within democratic states. The virtual space represented by *SMI* appears to give citizens within democracies an outlet to express themselves without needing to mobilize and protest.

The interaction between *SMI* and polity is undoubtedly not a phenomenon unto itself. *SMI* does not exist in society in isolation; it permeates, fundamentally altering the status quo. Simply put, horizontal ICT is not self-contained; it may also, therefore, be conditioned by some of the control variables contained within this study. Model 5 therefore shows a regression model that modifies Model 3 to takes into account the interaction at play between *SMI* and *ethnic fractionalization*, *rural population*, *press restrictions*, and the three regime types.

The significance and direction of coefficients for the control variables are effectively unchanged between Models 3 and 5. The new interactions between *SMI* and the variables *ethnic fractionalization* ($p < 0.05$) and *rural population* ($p < 0.05$) all yield statistically significant results. The coefficients of these complex interactions are more easily conceptualized when viewed graphically.

Figure 4 depicts the predicted count of protests, as a function of *SMI* and *ethnic fractionalization*, with all other variables held at their mean value. The blue line represents this predicted count of protests at the 95th percentile of *ethnic fractionalization* at the corresponding value for *SMI*. The confidence interval for that predicted count is shown with the blue shaded region. At low levels of *SMI*, highly fractionalized populations experience approximately three protests annually, which increases modestly to approximately four at the upper end of *SMI*. Similarly, the red line denotes the

predicted count of protests within populations with low *ethnic fractionalization*, the 5th percentile. The confidence interval is illustrated with the red shaded area. At the lower limits of *SMI* low *ethnic fractionalization* countries experience, fewer protest than do highly fractionalized ones. As *SMI* increases, however, the count nearly triples from under three to over ten protests annually.
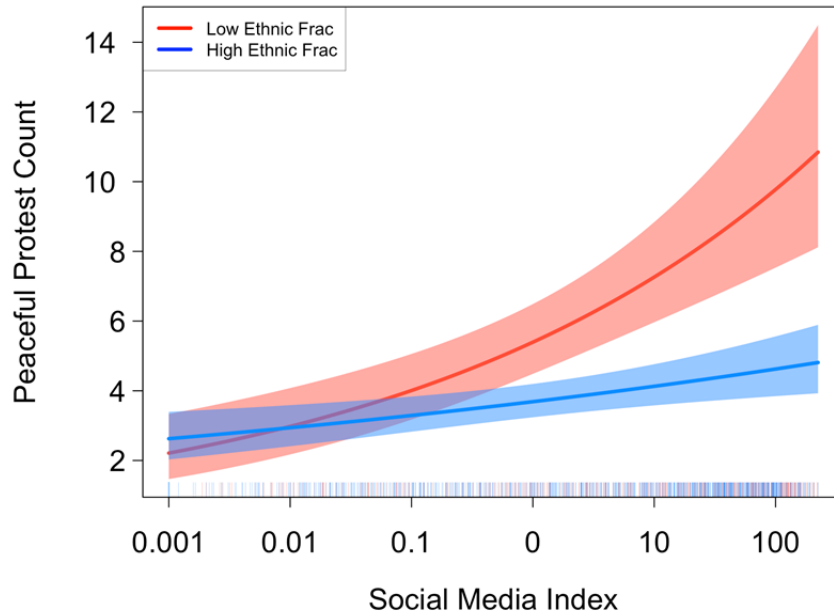

Figure 4.   Peaceful Protests by Ethnic Fractionalization as a Function of SMI
(Model 5)

The difference between the high and low *ethnic fractionalization* is statistically significant and serves as evidence to refute H5, which predicted that regimes with high levels of *ethnic fractionalization* would experience higher levels of *peaceful protest* as social media penetration increases. The findings within Model 5 and illustrated in Figure 4 suggest that the protest inducing effect of *SMI* is actually more pronounced within ethnically homogenous populations. Though ethnic homogeneity is not requisite for protest, it appears that it largely contributes to the expansion of protests within anocratic and autocratic regimes as *SMI* increases. Although it is not explored within this research, an interesting area of further inquiry would be whether *ethnic fractionalization* leads to alternate expressions of violent collective action.

Figure 5 was designed specifically to address H4, which predicted that regimes with high *rural populations* would experience greater increases in levels of *peaceful protest* as social media penetration increases. It illustrates the predicted count of protests, as a function of *SMI* and *rural population*, with all control variables held at their mean value. The blue line represents the predicted count of protests for the 80th percentile of overall *rural population*, at the corresponding value for *SMI*. At low levels of *SMI*, highly *rural populations* experience just over two protests annually, which almost triples to approximately six at high levels of *SMI*. On the other hand, the red line represents the predicted count of protests within populations in the 20th percentile of *rural population*. Populations with a smaller percentage of rural citizens experience a more modest growth in protests from three to five. Model 5 appeared to support H4, however the cumulative effect of all coefficients when viewed graphically, demonstrates only a modest separation in effect between high and low *rural populations*. It is thus impossible to reject the null hypothesis at the 5% confidence level.
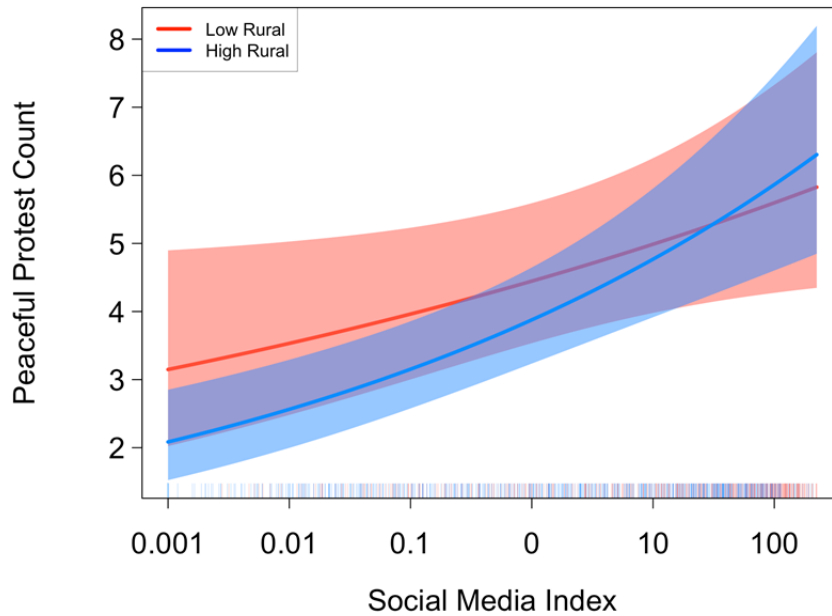

Figure 5.   Peaceful Protests by Rural Population as a Function of SMI
(Model 5)

Within Model 5, not only are the interactions between *SMI* and *ethnic fractionalization* and *rural population* statistically significant ($p < 0.05$), but so too is the negative interaction relationship between *SMI* and *press restrictions* ($p < 0.01$). That is, it appears that a restricted, state-censored press inhibits the protest inducing effects of *SMI*. Figure 6 illustrates the cumulative effect of *SMI* on the interaction between *SMI* and *press restrictions*. The blue line represents countries with *press restriction* to a 95% confidence interval, as illustrated by the shaded region, ranging from two to six across the *SMI* spectrum. The red line represents countries without *press restriction* to a 95% confidence interval, as illustrated by the shaded region, ranging from almost none to seven across the *SMI* spectrum. Cumulatively, both segments of the population experience increased protests, though in countries lacking *press restrictions* the protest-inducing effect of *SMI* is much stronger.
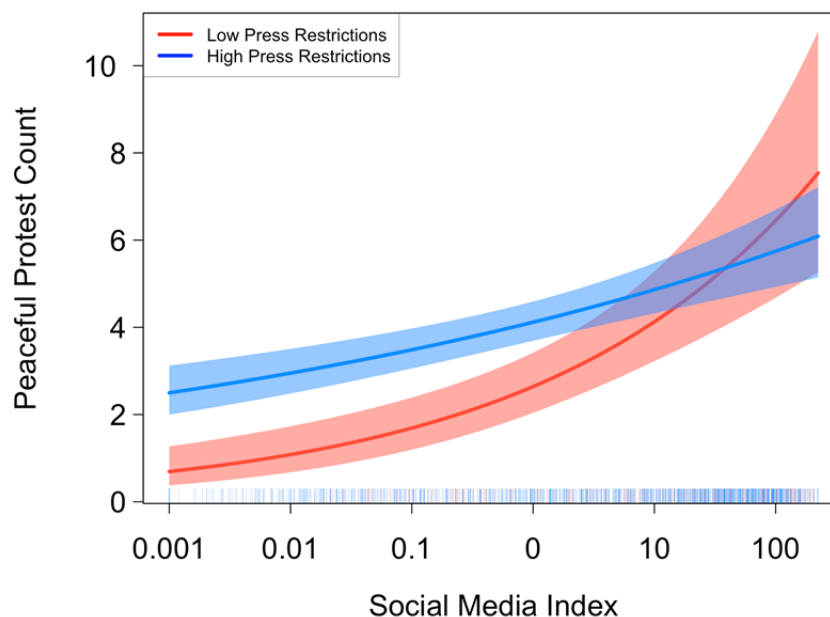

Figure 6.   Peaceful Protests by Press Restriction as a Function of SMI
(Model 5)

Although *press restrictions* are a measure of censorship within mass media, it is fair to assume that states that practice censorship will apply the same or similar measures to alternate forms of expression. Following this assumption, one might argue that censored horizontal ICT is akin to having none at all. Rather than enabling coordination and mobilization, censored horizontal *SMI* becomes an extension of state propaganda and a platform to collect intelligence on dissidents.

Interestingly, the effect of *SMI* on the rate of protests is most pronounced within anocracies, not autocracies, as originally hypothesized. Depending on outcomes and perspective, horizontal ICT appears to be, either a destabilizing force in already unstable and ineffective states, or an important catalyst for *peaceful protests* toward democratization in states that do not enjoy representative government. As costs associated with horizontal ICT infrastructure are reduced, with the perpetual advancement of technology, a social media challenge emerges for anocracies. An anocratic regime that wishes to maintain the status quo, should work to mitigate, reduce, or otherwise eliminate horizontal ICT. However, advances in *SMI* are often irreversible. Even if populations were willing to accept this type of state intervention, anocracies undoubtedly lack the capacity to institute it effectively. Though it is worth noting that states have an additional option, if they wish to maintain stability, according to the thesis' results, it may be in their best interest to implement democratic reforms.

An Akaike information criterion (AIC) value is computed with each of this study's negative binomial regression models. The AIC alone is insufficient to determine the validity of a model, but is useful in comparing models with lower AIC values indicating a better fit to the data. Model 5's AIC value is the smallest (5,679.005) of all models, indicating best fit. As previously asserted, the interactions between and among *SMI*, polity, and control variables are the most predictive to explain the rise in protests from 1990–2011. These models, when subjected to the subsequent robustness checks, support these findings.

B.   ROBUSTNESS CHECKS

The principal findings in this study aggregate African and Latin American countries together, however the two were run independently as a robustness check of the findings. There were few reportable changes between the aggregate dataset and Africa, however there is a key reportable shift in statistical significance with the Latin American countries. Here, the coefficient for the interaction between *SMI* and *autocracy* becomes negative and statistically significant, mirroring the pattern seen in full democracies. When viewed as a figure, both democracies and autocracies experience static rates of protest across the *SMI* spectrum, while anocracies see exponential growth in protest levels in the presence of higher levels of *SMI*.

The histories, geographies, politics, and economics of Africa and Latin America assuredly contribute distinct differences in expression of collective action. To that end, it should come as no surprise that the protest inducing effect of *SMI* on individual variables would have varied results. Most importantly, the protest inducing effect of *SMI* across all polity regime types is that *SMI* is particularly destabilizing to anocratic regimes lending credibility to this study's findings on the unique relationship between anocratic regimes and ICT.

The primary regression model employs a low threshold (a score of 35 out a possible 100) to define press as restricted. That choice was intentional; any amount of state meddling in the free flow of information is tantamount to censorship. That threshold was substantially raised (to a score of 70 out of a possible 100) as a second robustness check. Predictably, the conditioning effect of *press restrictions* becomes statistically insignificant. Additionally, the researchers ran the Internet and cellular data independently as a robustness check. The results of the disaggregated cell and Internet data are nearly identical to the *SMI* findings. As a final robustness check, fixed effects for unobserved heterogeneity between countries were applied to the primary regression models. All of these findings were sufficiently similar to omit from further discussion.

C.   SUMMARY OF RESULTS

The regression models offered in this study offer clear evidence that there is an association between *SMI*, political regime type, and the occurrence of protests. Though the evidence reported here does not directly support the original hypothesis that authoritarian regimes would experience more protests than democracies, it is clear that anocracies are particularly vulnerable to the effects of ICT. The findings of this study largely support a narrative, which posits that stable polities, whether democratic or autocratic, with relatively diverse, urban populations, are less inclined to protest in the face of rising ICT numbers. One of the hallmarks of new ICT infrastructure and technologies is that they enable an expanded base of users to participate in the popular discourse, where they may have previously been left behind with the last generation of ICT. Rural centers throughout much of Africa and Latin America, undoubtedly largely had less access to mass media technologies and landline telecommunications technology. These populations, and their governments, may be ill equipped to the effects of new media, because they never experienced, in mass, the normative effects of mass media, and its normative effects.

V.   IMPLICATIONS AND PROJECTIONS

Broadly, this research demonstrates that *SMI* interacts strongly with all regime types. Specifically, democratic and autocratic regimes seem more stable in the face of growing social media user numbers. Yet, *SMI* appears to have a unique interaction with anocratic regimes, rural states, and ethnically homogenous populations. These interactions may prove important to the international community as a whole and more importantly to U.S. policy makers. In this section, the thesis will broadly cover those findings, provide potential policy implications, and finally offer suggestions for future research in this field.

Democratic regimes seem the least affected by the spread of social media, as they experience no significant increase or decrease in *peaceful protests*. Although the findings do not entirely support H3, the data and research do demonstrate that *SMI* does not significantly increase *peaceful protest* in democracies. Therefore, the hypothesis is partially correct in assuming that protest levels would not rise. If citizens have a means to express their discontent with their leaders, then social media may just be another form of entertainment. Thus, *peaceful protests* may remain low in an environment where citizens believe that their concerns are both heard and fulfilled by the state leadership. Though the data does not suggest that *peaceful protest* may be a precursor to democratization, although this would be an interesting topic to investigate, it does portend that democracies will experience insignificant increases in *peaceful protests* as social media usage increases. The finding is promising, because it supports the prevailing notion that democracies are relatively stable polities.

Moreover, the thesis found that autocracies are also resistant to social media's effects. At first glance, this appears counterintuitive, and defied initial expectations with H1. Autocracies are often described as rigid states that are unable to respond to their populace's grievances or that they often hold positions without democratic elections. These complaints may hold true; however, autocracies are cognizant of their inadequacies, and they use social media to strengthen their weaknesses. Consequently, instead of allowing their populous unfettered access to media, autocracies may restrict

personal access to media while simultaneously utilizing social media venues to strengthen state apparatuses. Returning to the earlier example, China routinely uses the Internet to promote government activities, monitor conversations, and block any outside ideas from influencing their citizens. When social media is controlled in this manner, it may serve a more similar role as mass media. In essence, autocratic citizens receive the news broadcasted by its government, and because of government funded firewalls, rarely experience an influx of outside ideas. In autocratic states with strong institutions, controlling the media is feasible. However, when a weaker form of government, such as *anocracy*, is faced with similar circumstances, it seems that their instructions may not be as resilient.

Most notably, the data reveal that anocratic states are the most sensitive to social media effects on *peaceful protest*. This suggests that anocratic states have the most trouble with maintaining the status quo in the face of new technology. This may be caused by their relatively weak institutions, as compared to their more stable counterparts, democracies and autocracies. Anocratic states often go to great measures to portray outward characteristics of democratic or autocratic states; however, *SMI* exposes their weak institutions, which may eventually induce *peaceful protest*. Therefore, in order to appeal to the portion of the national community interested in democratic reforms, or even potential suitors from more autocratic backgrounds, the anocratic state may decide to either close their information channels or implement democratic reforms that promote information sharing. As such, anocratic regimes face a social media challenge centered on either increasing freedoms or increasing restrictions.

Interestingly, the data suggest that there are ways that anocracies may counteract *SMI*'s destabilizing characteristics. The data reveal that strong electoral institutions, whether autocratic or democratic allow states to avoid *SMI* impacts, but interestingly, the thesis also finds that strong media restrictions allow states to avoid these impacts. In other words, an *anocracy* could choose to implement either democratic or autocratic reforms to possibly receive similar results. However, if the government decides to maintain the status quo, then *SMI*'s disruptive effects continue to grow as more members of the population gains access to social media.

This research also lends to the line of thought that high levels of *ethnic fractionalization* are not necessarily disruptive. In fact, the data shows that *SMI* has its most protest inducing effect in those states that have ethnic homogeneity. This may be explained by social media's tendency to reinforce existing relationships and its tendency to bring like-minded individuals together under one community umbrella. Therefore, protest may be more likely under those groups where people with similar cultural backgrounds and upbringings are reinforcing each other's complaints against their government. Under highly fractionalized states, this cohesion is less unlikely, because ethnic differences drive the different ethnic groups apart, thus decreasing the likelihood for organized *peaceful protests*. This may demonstrate that social media tends to promote isolation, more so, than it does with bringing ethnically different groups together. Obviously, a state cannot control its baseline ethnic make-up, but understanding *ethnic fractionalization* may provide insight into how states decide to implement controls on media. For instance, states with high *ethnic fractionalization* may lean toward increasing media freedom while states with low *ethnic fractionalization* may implement more restrictive measures on information freedom.

Furthermore, as the *SMI* rises in high rural countries, so too do the number of *peaceful protest*. In anocratic regimes concomitant with weak institutions, the rural population may be removed from the state building capacity that is often located in urban centers. A state's failure in ability to reach these remote locations may exacerbate their citizen's grievances, and create further disconnect from the government. States, in this case, may choose to expand its social media to rural locations, and restrict social media to a state-making tool.

These phenomena lead to key considerations for policy makers. How does the United States influence these susceptible states to choose the democratic route? If left to develop on its own, the affected country may embark on a path of information restriction, possibly closing its information lines with other democracies isolating itself from the international community. Once these states achieve a certain level of disruption, they may become problematic to their neighbors and possibly the international community. Another consideration is that competing world powers are constantly seeking new

partners. If the United States ignores these fragile states, its competitors may seize an opportunity to expand their influence into the affected country.

Policy makers must be acutely aware of both the protest-inducing effects of *SMI* on regimes, for horizontal ICT has fundamentally altered human interaction, the world over. Recognizing that anocracies are in this delicate balance of power, policy makers should place priority in engaging anocratic states, through persistent engagement along all diplomatic, information, military, and economic lines of effort. As figure 1 shows, the diffusion of these systems will continue to grow. It is, therefore, vital to at least attempt to understand the interactions that exist between technology and society.

This research does not establish a causal relationship between the *SMI* and *peaceful protests*, but it does indicate a substantial relationship. Though these findings are compelling, there are limitations to the research design that would ideally be tested with the availability of updated data. Ideally, future inquiry into the relationship between *SMI* and *peaceful protest* will utilize a global dataset, not constrained to two regions. This study ignored the objectives, outcomes, and size of *peaceful protests*, future iterations could parse these details out to better understand the nature of protests, and which ones are truly meaningful. Finally, just as not all *peaceful protests* are equal, not all censorship is equal. Though press restrictions attempted to approximate state censorship, future inquiry should identify an Internet freedom metric.

Additionally, this study raises questions that merit empirical analysis in their own right. Primarily, this begs the question whether peaceful protest is tantamount to popular requests for state democratization. This statement is untested and deserves exploration. Is peaceful protest a means to an end, or is it an end unto itself? Similarly, do regimes that experience protest, particularly protest in conjunction with autocratic to anocratic transition, eventually complete the transition to full democracy? What roles can *SMI* play in that transition? How robust are these transitions if press restrictions can be used to suppress peaceful protests?

APPENDIX. ROBUSTNESS CHECKS

Table 2.   Robustness Check, Fixed Effects for Countries[67]

	Model 1	Model 2	Model 3	Model 4	Model 5
SMI		0.238***	0.337***	0.179***	0.796***
		(0.048)	(0.057)	(0.048)	(0.115)
GDP	0.283	0.033	0.354	0.375	0.117
	(0.445)	(0.449)	(0.443)	(0.443)	(0.441)
Population	3.729***	-0.486	-1.572	-1.597	1.120
	(0.696)	(1.082)	(1.100)	(1.087)	(1.245)
Ethnic Fractionalization	9.001**	-12.435**	-14.855**	-14.295**	-12.806**
	(3.736)	(5.751)	(5.864)	(5.754)	(5.848)
Rural Population	0.038***	0.053***	0.057***	0.055***	0.083***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)
Press Restrictions	0.258*	0.273*	0.164	0.177	0.149
	(0.155)	(0.154)	(0.151)	(0.151)	(0.154)
Democratization Score	0.022*	0.014	0.036**	0.024**	0.042***
	(0.012)	(0.012)	(0.017)	(0.011)	(0.016)
Autocracy			-0.433***		-0.402**
			(0.166)		(0.164)
Democracy			-0.630***		-0.589***
			(0.150)		(0.149)
SMI * Ethnic Frac					-0.241***
					(0.076)
SMI * Rural Pop					-0.003**
					(0.001)
SMI * Press Rest					-0.206***
					(0.072)
SMI * Autocracy			-0.171***		-0.175***
			(0.056)		(0.056)
SMI * Democracy			-0.139***		-0.250***
			(0.047)		(0.054)
Anocracy				0.507***	
				(0.083)	
SMI * Anocracy				0.157***	
				(0.041)	
Constant	-32.508***	8.670	16.784*	16.204	-4.485
	(5.550)	(9.902)	(10.104)	(9.978)	(11.077)
Observations	1,344	1,344	1,344	1,344	1,344
Log Likelihood	-2,991.257	-2,980.614	-2,954.858	-2,955.398	-2,943.650
theta	1.398*** (0.085)	1.441*** (0.089)	1.559*** (0.100)	1.558*** (0.100)	1.622*** (0.106)
Akaike Inf. Crit.	6,108.514	6,089.227	6,045.716	6,042.796	6,029.301
Note:					*p<0.1; **p<0.05; ***p<0.01

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[67] Coefficients from negative binomial regressions. Standard errors in parentheses.

Table 3. Robustness Check, Africa[68]

	Model 1	Model 2	Model 3	Model 4	Model 5
SMI		0.101***	0.151***	0.033	0.679***
		(0.025)	(0.033)	(0.035)	(0.142)
GDP	0.505***	0.453***	0.555***	0.567***	0.516***
	(0.136)	(0.137)	(0.139)	(0.139)	(0.139)
Population	1.301***	1.242***	1.195***	1.201***	1.149***
	(0.076)	(0.076)	(0.077)	(0.076)	(0.077)
Ethnic Fractionalization	-0.360**	-0.221	-0.198	-0.191	-0.153
	(0.160)	(0.160)	(0.164)	(0.162)	(0.164)
Rural Population	-0.007*	-0.004	0.00003	-0.001	0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Press Restrictions	0.749***	0.733***	0.545***	0.622***	0.671***
	(0.145)	(0.145)	(0.153)	(0.150)	(0.167)
Democratization Score	0.020**	0.012	0.050***	0.018**	0.052***
	(0.008)	(0.009)	(0.015)	(0.009)	(0.015)
Autocracy			0.113		0.127
			(0.151)		(0.149)
Democracy			-0.545***		-0.483***
			(0.171)		(0.170)
SMI * Ethnic Frac					-0.295***
					(0.094)
SMI * Rural Pop					-0.001
					(0.001)
SMI * Press Rest					-0.258**
					(0.102)
SMI * Autocracy			-0.072		-0.082
			(0.058)		(0.058)
SMI * Democracy			-0.117**		-0.198***
			(0.058)		(0.070)
Anocracy				0.210**	
				(0.088)	
SMI * Anocracy				0.111**	
				(0.046)	
Constant	-9.316***	-9.017***	-8.964***	-9.304***	-8.827***
	(0.825)	(0.827)	(0.830)	(0.828)	(0.824)
Observations	1,064	1,064	1,064	1,064	1,064
Log Likelihood	-2,499.176	-2,491.263	-2,483.027	-2,486.275	-2,474.702
theta	0.839*** (0.050)	0.857*** (0.051)	0.878*** (0.053)	0.873*** (0.052)	0.903*** (0.055)
Akaike Inf. Crit.	5,012.352	4,998.527	4,990.053	4,992.550	4,979.404

| *Note:* | | | | | *p<0.1; **p<0.05; ***p<0.01 |

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[68] Coefficients from negative binomial regressions. Standard errors in parentheses.

Table 4.   Robustness Check, Latin America[69]

	Model 1	Model 2	Model 3	Model 4	Model 5
SMI		0.130*** (0.044)	0.798*** (0.164)	0.064 (0.048)	0.283 (0.285)
GDP	-0.173 (0.245)	-0.354 (0.244)	0.389 (0.279)	0.039 (0.267)	0.219 (0.290)
Population	2.187*** (0.203)	2.132*** (0.197)	1.546*** (0.242)	1.875*** (0.225)	1.820*** (0.266)
Ethnic Fractionalization	-1.992*** (0.500)	-1.704*** (0.488)	-0.719 (0.517)	-1.181** (0.511)	-0.442 (0.562)
Rural Population	0.033*** (0.007)	0.031*** (0.007)	0.014* (0.008)	0.023*** (0.007)	0.001 (0.009)
Press Restrictions	-0.268 (0.208)	-0.379* (0.209)	-0.332 (0.205)	-0.261 (0.210)	-0.239 (0.210)
Democratization Score	-0.066*** (0.014)	-0.077*** (0.015)	-0.234*** (0.054)	-0.069*** (0.015)	-0.236*** (0.054)
Autocracy			-2.084*** (0.607)		-2.154*** (0.624)
Democracy			0.571* (0.328)		0.949*** (0.361)
SMI * Ethnic Frac					-0.605* (0.337)
SMI * Rural Pop					0.016*** (0.004)
SMI * Press Rest					-0.123 (0.098)
SMI * Autocracy			-0.547*** (0.205)		-0.281 (0.234)
SMI * Democracy			-0.742*** (0.178)		-0.776*** (0.186)
Anocracy				0.224 (0.217)	
SMI * Anocracy				0.632*** (0.175)	
Constant	-13.623*** (1.820)	-12.526*** (1.774)	-9.874*** (1.962)	-12.026*** (1.812)	-10.902*** (2.151)
Observations	280	280	280	280	280
Log Likelihood	-660.643	-656.811	-644.815	-651.077	-636.313
theta	1.572*** (0.216)	1.713*** (0.247)	1.921*** (0.282)	1.800*** (0.261)	1.977*** (0.280)
Akaike Inf. Crit.	1,335.286	1,329.623	1,313.630	1,322.154	1,302.626

Note: *p<0.1; **p<0.05; ***p<0.01

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[69] Coefficients from negative binomial regressions. Standard errors in parentheses.

Table 5.   Robustness Check, Cellular[70]

	Model 1	Model 2	Model 3	Model 4	Model 5
Cell		0.100***	0.148***	0.019	0.459***
		(0.022)	(0.030)	(0.029)	(0.107)
GDP	0.261**	0.196*	0.351***	0.371***	0.310***
	(0.111)	(0.110)	(0.111)	(0.112)	(0.111)
Population	1.299***	1.242***	1.210***	1.211***	1.204***
	(0.070)	(0.070)	(0.069)	(0.069)	(0.069)
Ethnic Fractionalization	-0.541***	-0.481***	-0.512***	-0.506***	-0.505***
	(0.127)	(0.126)	(0.129)	(0.129)	(0.129)
Rural Population	-0.006**	-0.004	-0.001	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Press Restrictions	0.428***	0.409***	0.274**	0.305***	0.428***
	(0.115)	(0.115)	(0.117)	(0.116)	(0.124)
Democratization Score	-0.002	-0.008	0.038***	0.003	0.035**
	(0.007)	(0.007)	(0.014)	(0.008)	(0.014)
Autocracy			-0.015		-0.028
			(0.147)		(0.146)
Democracy			-0.712***		-0.578***
			(0.146)		(0.147)
Cell * Ethnic Frac					-0.199***
					(0.076)
Cell * Rural Pop					0.002
					(0.001)
Cell * Press Rest					-0.290***
					(0.073)
Cell * Autocracy			-0.073		-0.099*
			(0.055)		(0.056)
Cell * Democracy			-0.134***		-0.270***
			(0.047)		(0.057)
Anocracy				0.393***	
				(0.080)	
Cell * Anocracy				0.121***	
				(0.041)	
Constant	-8.264***	-7.776***	-7.862***	-8.344***	-7.811***
	(0.718)	(0.719)	(0.714)	(0.714)	(0.708)
Observations	1,344	1,344	1,344	1,344	1,344
Log Likelihood	-3,213.621	-3,203.307	-3,183.721	-3,187.952	-3,173.318
theta	0.831*** (0.043)	0.851*** (0.044)	0.890*** (0.047)	0.884*** (0.047)	0.912*** (0.048)
Akaike Inf. Crit.	6,441.242	6,422.614	6,391.443	6,395.904	6,376.637

| *Note:* | | | | | *p<0.1; **p<0.05; ***p<0.01 |

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[70] Coefficients from negative binomial regressions. Standard errors in parentheses.

Table 6.   Robustness Check, Internet[71]

	Model 1	Model 2	Model 3	Model 4	Model 5
Internet		0.162***	0.230***	0.070**	0.547***
		(0.025)	(0.035)	(0.033)	(0.112)
GDP	0.261**	0.138	0.304***	0.323***	0.278**
	(0.111)	(0.110)	(0.111)	(0.111)	(0.111)
Population	1.299***	1.214***	1.189***	1.182***	1.201***
	(0.070)	(0.069)	(0.069)	(0.069)	(0.069)
Ethnic Fractionalization	-0.541***	-0.409***	-0.416***	-0.427***	-0.546***
	(0.127)	(0.126)	(0.129)	(0.128)	(0.135)
Rural Population	-0.006**	-0.004	-0.001	-0.002	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Press Restrictions	0.428***	0.399***	0.264**	0.301***	0.218*
	(0.115)	(0.114)	(0.116)	(0.115)	(0.115)
Democratization Score	-0.002	-0.009	0.040***	0.0001	0.038***
	(0.007)	(0.007)	(0.014)	(0.007)	(0.014)
Autocracy			0.009		-0.015
			(0.154)		(0.153)
Democracy			-0.825***		-0.794***
			(0.146)		(0.146)
Internet * Ethnic Frac					-0.209**
					(0.086)
Internet * Rural Pop					0.001
					(0.001)
Internet * Press Rest					-0.284***
					(0.076)
Internet * Autocracy			-0.075		-0.089
			(0.061)		(0.061)
Internet * Democracy			-0.187***		-0.331***
			(0.052)		(0.065)
Anocracy				0.455***	
				(0.085)	
Internet * Anocracy				0.151***	
				(0.046)	
Constant	-8.264***	-7.347***	-7.494***	-7.982***	-7.407***
	(0.718)	(0.718)	(0.712)	(0.713)	(0.708)
Observations	1,344	1,344	1,344	1,344	1,344
Log Likelihood	-3,213.621	-3,193.186	-3,172.002	-3,177.916	-3,162.309
theta	0.831*** (0.043)	0.869*** (0.045)	0.913*** (0.048)	0.904*** (0.048)	0.933*** (0.050)
Akaike Inf. Crit.	6,441.242	6,402.371	6,368.003	6,375.832	6,354.617

Note: *p<0.1; **p<0.05; ***p<0.01

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[71] Coefficients from negative binomial regressions. Standard errors in parentheses.

Table 7. Robustness Check, Alternate Press Restriction Threshold[72]

	Model 1	Model 2	Model 3	Model 4	Model 5
SMI		0.124***	0.182***	0.035	0.251***
		(0.022)	(0.031)	(0.029)	(0.085)
GDP	0.128	0.060	0.272**	0.287***	0.267**
	(0.106)	(0.104)	(0.107)	(0.107)	(0.106)
Population	1.339***	1.278***	1.239***	1.236***	1.238***
	(0.069)	(0.069)	(0.069)	(0.068)	(0.069)
Ethnic Fractionalization	-0.553***	-0.463***	-0.480***	-0.488***	-0.409***
	(0.128)	(0.127)	(0.130)	(0.129)	(0.132)
Rural Population	-0.007***	-0.006**	-0.002	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Press Restrictions	0.101	0.133	0.143	0.148*	0.140
	(0.090)	(0.090)	(0.088)	(0.088)	(0.089)
Democratization Score	-0.010	-0.015**	0.038***	-0.0003	0.039***
	(0.007)	(0.007)	(0.015)	(0.008)	(0.015)
Autocracy			0.028		0.038
			(0.142)		(0.141)
Democracy			-0.719***		-0.677***
			(0.145)		(0.144)
SMI * Ethnic Frac					-0.201***
					(0.077)
SMI * Rural Pop					0.001
					(0.001)
SMI * Press Rest					0.018
					(0.048)
SMI * Autocracy			-0.069		-0.090
			(0.054)		(0.057)
SMI * Democracy			-0.169***		-0.191***
			(0.047)		(0.053)
Anocracy				0.393***	
				(0.078)	
SMI * Anocracy				0.140***	
				(0.041)	
Constant	-7.702***	-7.271***	-7.655***	-8.053***	-7.699***
	(0.713)	(0.707)	(0.700)	(0.704)	(0.699)
Observations	1,344	1,344	1,344	1,344	1,344
Log Likelihood	-3,219.423	-3,204.414	-3,180.346	-3,186.055	-3,176.602
theta	0.825*** (0.042)	0.852*** (0.044)	0.899*** (0.048)	0.891*** (0.047)	0.909*** (0.048)
Akaike Inf. Crit.	6,452.846	6,424.829	6,384.693	6,392.109	6,383.205

Note: *p<0.1; **p<0.05; ***p<0.01

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[72] Coefficients from negative binomial regressions. Standard errors in parentheses.

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